UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,934	07/03/2003	Sadao Kanbe	45360	3959

1609 7590 06/24/2008

ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.
1300 19TH STREET, N.W.
SUITE 600
WASHINGTON,, DC 20036

EXAMINER	
HAIDER, SAIRA BANO	
ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
06/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/611,934	KANBE ET AL.	
	Examiner	Art Unit	
	SAIRA HAIDER	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9 and 12-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9 and 12-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> a. The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 9 and 12-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

3. Claim 9 recites that the shell thickness is in the range of 0.1 to 0.5 μm. However, this range is not supported by applicant's specification. It is noted that the specification discloses ranges of 0.1 to 5 μm, 0.1 to 4 μm, and 0.1 to 3 μm (PG PUB of herein application at [0070]), however, 0.5 μm is not recited, accordingly, each and every point in the newly claimed range is not supported. Further, the examples provided by applicant are not sufficient to establish the entire claimed range.

4. For purposes of examination, it appears that applicant intended to recite that the shell thickness is in the range of 0.1 to 5 μm, given that the Remarks of 3/20/2008 state that claim 9 has been amended to incorporate the subject matter of claim 11 (page 4, ¶ 1). Wherein claim 11 recites that the thickness of the shell is within the range of 0.1 to 5 μm. Accordingly, in order to advance prosecution 0.5 μm is rendered a typographical error, examination has been completed on the basis that the claimed thickness of the shell is within the range of 0.1 to 5 μm.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. (US 2001/0046081) in view of Liang et al. (US 2002/0131152).

7. Hayashi discloses a display element (electrophoretic display) comprising a microcapsule composition (abstract). The microcapsule composition comprises microcapsules and an aqueous solution [0188]. The microcapsules comprise a dispersed system sealed in the microcapsule, wherein the dispersed system comprises electrophoretic particles dispersed in dielectric liquid. The dielectric liquid includes solvents [0168-0170]. Wherein the microcapsules and aqueous solution comprise 100% of the microcapsule composition [0188]. Hayashi discloses that the microcapsules have a core diameter in the range of 10 to 200 μm [0036]. Wherein the shell has a thickness of 3 μm or more [0325].

8. Hayashi fails to disclose two limitations, the weight percent of microcapsules present in the microcapsule composition and the size distribution of the microcapsules.

9. In reference to the weight percent of microcapsules present in the microcapsule composition, Hayashi exemplifies about 0.17- about 16 wt% of microcapsules present in the microcapsule emulsion, whereas applicants have claimed 30-80 wt% [0188]. However, it is the examiner's position that depending on the desired outcome of the electrophoretic display, one of ordinary skill in the art would readily be capable of modifying the weight percent of microcapsules present in the composition in order to obtain enhanced optical characteristics. Specifically, an increase in the microcapsule concentration would result in an increase in the visible light and dark

components of the microcapsule contained in the display device, thus resulting in improved viewing quality. Additionally, MPEP § 2144.05 states that generally, differences in concentration will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicated such a concentration is critical. In the absence of any showing that the microcapsule concentration is critical the difference in concentration is not considered to support the patentability of the claimed subject matter.

10. The Hayashi reference fails to explicitly disclose the exact values of the particle distribution by volume, as claimed. Hence attention is directed towards the Liang et al. reference, which teaches that the size distribution of the microcapsules of the prior art are broad, resulting in poor resolution and addressability for color applications [0007]. Thus, it would have been obvious to one of ordinary skill in the art to narrow the microcapsule size distribution of Hayashi in order to improve the resolution and addressability for color applications in electrophoretic displays. Wherein it would have been obvious to one of ordinary skill in the art to optimize the size distribution; it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

11. Clearly, Ling et al. recognizes the size distribution of microcapsules in electrophoretic displays as a result effective variable because changing it will clearly affect the type of product obtained. See MPEP § 2144.05 (B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In view of this, it would have been obvious to one of ordinary skill in the art to modify the particle diameter distribution by volume to values within the scope of the present claims so as to produce desired end results (increased resolution).

12. In reference to the product-by-process limitations of claims 12 and 13, it is the examiner's position that the product of Hayashi appears to be the same or similar to that claimed, although produced by a different process. Specifically, since the electrophoretic particles, suspending fluid and aqueous binder of Hayashi correspond to those claimed and provided in the specification, it is clear that the resulting microcapsule composition of Hayashi is the same or similar to that claimed. However, it is noted that the Hayashi reference discloses wet classification [0317].

13. The examiner has provided a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi,* 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983).

Response to Arguments

14. Applicants' arguments filed have been fully considered but they are not persuasive.

15. Applicants have essentially argued that the 103 rejections are invalid because the Liang reference does not cure the deficiencies of the primary references, specifically, the Loang reference fails to identify the size distribution or teach hows to modfiy the size distribution. The examiner has thoroughly considered applicants' arguments and the support provided, and concludes that the obviousness rejections are valid.

16. It is noted that the cited portion of the Liang reference is [0007] which discloses that a large particle size distribution is not desired, thus motivating one to narrow the particle size distribution. It is not necessary that the reference identify the desired or undesired particle size distributions, rather the teaching that narrow size distributions are prefered guides one skilled in the art to optimize this parameter and established that the parameter is result-effective. It is not necessary for

the Liang reference to disclose the mode of distribution optimization, since one of ordinary skill in the art would readily be capable of optimizing the distribution given that such modes are well know in the art (such as utilziation of filtering).

17. Applicants have attempted to show (via submission of the 1.132 Declaration on 3/20/2008) the presence of improved results obtained from the claimed invention. Specifically, applicants have argued that the combination of the microcapsule content and the claimed ratio defining the size distribution results in unexpectedly improved properties. The examiner has considered the Declaration and concludes that it is insufficient to overcome the prima facie case of obviousness because it include(s) statements which amount to an affirmation that the claimed subject matter functions as it was intended to function. This is not relevant to the issue of nonobviousness of the claimed subject matter and provides no objective evidence thereof. Details regarding the deficiencies are discussed below.

18. Firstly, the unexpected results are not commensurate in scope with the claimed invention, applicants claims are generic to the claimed components (for example the claim is generic to the microcapsule shell, solvent, and, electrophoretic particles), whereas the examples are drawn to species of the claimed components (for example the declaration utilizes gum arabic and gelatin as the microcapsule shell). Furthermore, applicants have failed to provide an adequate basis for reasonably concluding that the great number and variety of compositions included in the claims would behave in the same manner as the tested composition. See MPEP § 716.02(d)(I). Thus, the evidence provided is not commensurate in scope with the claims.

19. Secondly, applicant has claimed broad ranges for the microcapsule content (30-80 wt %)and the claimed size distribution ratio (greater than 80%) of the microcapsules, whereas the examples are drawn to specific amounts of each of the components. Attention is directed to MPEP § 716.02(d)(I),

which states that nonobviousness of a genus or claimed range may be supported by data showing unexpected results from testing a narrower range if one of ordinary skill in the art would be able to determine a trend in the exemplified data which would allow the artisan to reasonably extend the probative value thereof. However, applicants have failed to provide such evidence.

20. Additionally, a side-by-side comparison should hold all variable the same except for that which is alleged to be critical. Ex Parte Raske, 28 USPQ2d 1306. Applicant has failed to hold all the variables, except the critical variable constant. Moreover, the Examples 1-4 and the Experiment 3 include a variation of four variables: the microcapsule diameter, the maximum peak particle diameter, the microcapsule content and the size distribution ratio. Experiment 1 as compared to Example 1 includes the variation of the microcapsule diameter and the maximum peak particle diameter. Experiment 2 as compared to Example 1 includes the variation of microcapsule diameter, the maximum peak particle diameter, and the microcapsule content. Experiment 1 as compared to Experiment 2 includes the variation of the microcapsule diameter, the maximum peak particle diameter, the microcapsule content and the size distribution ratio. As noted above, it is necessary that a side-by-side comparison hold all the variables the same except that which is alleged critical. Applicants have not alleged that the microcapsule diameter is a critical variable leading to the alleged unexpected results. Thus, in each of the above comparisons, it is not necessarily clear that the claimed microcapsule content and the size distribution ratio result in the expectedly improved properties.

21. Applicants have requested comparison of Experiment 3 (that of Hayashi et al.) to Examples 1 to 4 (inventive examples), and the comparison of Experiments 1 and 2 to Example 1. The examiner is unable to conclude, as applicants' allege, that the combination of the microcapsule content and the claimed size ratio are actually unexpected results. As noted in the rejection above, an

increase in the microcapsule content in the invention of Hayashi is expected to result in improved properties. Furthermore, as noted in the rejection above, narrowing of the size distribution ratio is also expected to result in improved properties. Accordingly, it is not readily apparent that the microcapsule content and the claimed size ratio yield unexpected results.

22. Applicants' attention is directed to MPEP §716 for guidance as to the requirements for effectively rebutting a prima facie case of obviousness based on unexpected results.

Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

24. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saira Haider whose telephone number is (571) 272-3553. The examiner can normally be reached on Monday-Friday from 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796

Saira Haider
Examiner
Art Unit 1796